

10/562627

SEQUENCE LISTING

<110> CHOE, Mu-Hyeon
CHOI, Seong-Hyeok
LEE, Yong-Chan
KWON, Hye-Won
WON, Jae-Seon
YU, Mi-Hyun
SONG, Jeong-Hwa
KIM, Yong-Jae

IAP20 Rec'd PCT/PTO 22 DEC 2005

<120> The Dimer of Chimeric Recombinant Binding Domain-Functional Group Fusion formed via Disulfide-bond-bridge and The Process For Producing The Same

<130> 428.1060

<150> PCT/KR2004/001595
<151> 2004-06-30

<150> KR2003-0043599
<151> 2003-06-30

<160> 12

<170> KopatentIn 1.71

<210> 1
<211> 1749
<212> DNA
<213> pMC74 plasmid coding sequence

<400> 1
atggatgtga agctggtgga atctggagga ggcttagtgc agcctggagg gtcctgaaa
60

ctctccctgtg caacctctgg attcactttc agtgactatt acatgtattt ggttcggccag
120

actccagaga agaggctgga gtgggtcgca tacatttagta atgatgata gttccggccct
180

tattcagaca ctgtaaaggg ccggttcacc atctccagag acaatgccag gaaacaccctc
240

tacctgcata tgagccgtct gaagtctgag gacacagcca tatattccctg tgcaagagga
300

ctggccctggg gagcctgggt tgcttactgg ggccaaggga ctctggcac tgtctctgca
360

gccaaaacga caccccccac tgtctatcca ctggccctg gatctgctgc ccaaactaac
420

tccatggtga ccctgggatg cctggtaag ggctattcc ctgagccagt gacagtgacc
480

tggaaactctg gatccctgtc cagcggtgtg cacacccctc cagctgtcct gcagtctgac
540

ctctacactc tgagcagctc agtgactgtc ccctccagca cctggccctg cgagaccgtc
600

acctgcaacg ttgcccaccc ggccagcagc accaagggtgg acaagaaaat tgtgccagg
660
gattgtggta gtaagcctag cataagtaca aaagcttccg gaggtcccga gggcggcagc
720
ctggccgcgc tgaccgcga ccaggcttgc cacctgccgc tggagacttt caccgtcat
780
cgccagccgc gcggctggga acaactggag cagtgcggct atccggtgca gcggctggtc
840
gccctctacc tggcggcgcg gctgtcgtgg aaccaggtcg accaggtgat ccgcaacgcc
900
ctggccagcc ccggcagcgg cggcgacctg ggcgaagcga tccgcgagca gccggagcag
960
gcccgtctgg ccctgaccct ggccgcccgc gagagcgagc gcttcgtccg gcagggcacc
1020
ggcaacgacg aggccggcgc ggccaacggc ccggcggaca gcggcgacgc cctgctggag
1080
cgcaactatc ccactggcgc ggagttcctc ggcgacggcg ggcacgtcag cttcagcacc
1140
cgcggcacgc agaactggac ggtggagcgg ctgctccagg cgcaccgcca actggaggag
1200
cgcggctatg tgttcgtcgg ctaccacggc actttcctcg aagcggcgca aagcatcgta
1260
ttcggcgcccc tgcgcgcgc cagccaggac ctcgacgcga tctggcgccg tttctatata
1320
gccggcgatc cggcgctggc ctacggctac gcccaggacc aggaacccga cgcacgcggc
1380
cggatccgca acggtgccct gctgcgggtc tatgtgccgc gctcgagcct gccgggcttc
1440
taccgcacca gcctgaccct ggccgcgcgc gaggcggcgg gcgaggtcga acggctgatc
1500
ggccatccgc tgccgctgcg cctggacgc atcaccggcc ccgaggagga aggcggcgcc
1560
ctggagacca ttctcggctg gccgctggcc gagcgcaccc tggtgattcc ctggcgatc
1620
cccaccgacc cgcgcaacgt cggcgccgac ctcgacccgt ccagcatccc cgacaaggaa
1680
caggcgatca gcgcctgcc ggactacgcc agccagcccg gcaaaccgcc gcgcgaggac
1740
ctgaagtaa
1749

<210> 2
<211> 1764

<212> DNA
<213> pMH21 plasmid coding sequence

<400> 2
atggaggtga agctgggtgga atctggagga ggcttagtgc agcctggagg gtccctgaaa
60

ctctccctgtg caacacctgg attcaacttc agtgactatt acatgttattg ggttcgccag
120

actccagaga agaggctgga gtgggtcgca tacattagta atgatgatag ttccgcccgt
180

tattcagaca ctgtaaaggg ccgggttcacc atctccagag acaatgccag gaacaccctc
240

tacctgcaaa tgagccgtct gaagtctgag gacacagcca tatattcctg tgcaagagga
300

ctggcctggg gagcctggtt tgcttactgg ggccaaggga ctctggtcac tgtctctgca
360

gccaaaacga caccggcgtc tgtctatcca ctggccctg gatctgctgc ccaaactaac
420

tccatggtga ccctgggatg cctggtcaag ggctattcc ctgagccagt gacagtgacc
480

tggaaactctg gatccctgtc cagcggtgtg cacaccttcc cagctgtcct gcagtctgac
540

ctctacactc tgagcagctc agtgactgtc ccctccagca cctggcccg cgagaccgtc
600

acctgcaacg ttgcccaccc ggccagcagc accaaggtgg acaagaaaat tgtgcccagg
660

gattgtggta gtaagccttg cataagtaca aaagcttctg gtgggtggcgg atctggaggt
720

cccgagggcg gcagcctggc cgcgctgacc ggcgaccagg cttgccacct gccgctggag
780

actttcaccc gtcatcgcca gccgcgcggc tggaaacaac tggagcagtg cggctatccg
840

gtgcagcggc tggcgcctt ctacctggcg ggcggctgt cgtggaaacca ggtcgaccag
900

gtgatccgca acgcccggc cagccccggc agcggcggcg acctggcgaa agcgatccgc
960

gagcagccgg agcaggccccg tctggccctg accctggccg ccgcccggagcgagcgcttc
1020

gtccggcagg gcaccggcaa cgacgaggcc ggcgcggcca acggccggc ggacagcggc
1080

gacgcctgc tggagcgc当地 ctatcccact ggcgccggagt tcctcgccga cggcggcgac
1140

gtcagctca gcacccggcgg cacgcagaac tggacgggtgg agcggctgct ccaggcgac
1200

cgccaaactgg aggagcgcgg ctatgtgttc gtccggctacc acggcacctt cctcgaagcg
1260
gcgcaaagca tcgtcttcgg cgggggtgcgc gcgccgcagcc aggacacctga cgcgatctgg
1320
cgccggtttct atatcgccgg cgatccggcg ctggcctacg gctacgcccga ggaccaggaa
1380
cccgacgcac gcggccggat ccgcaacggt gccctgctgc gggtctatgt gccgcgctcg
1440
agcctgccgg gcttctaccg caccagcctg accctggccg cgccggagggc ggccggcgag
1500
gtcgaacggc tgatcggcca tccgctgccc ctgcgcctgg acgccatcac cggcccccag
1560
gaggaaggcg ggcgcctgga gaccattctc ggctggccgc tggccgagcg caccgtggtg
1620
atcccctcgg cgatccccac cgacccgcgc aacgtcggcg gcgacacctga cccgtccagc
1680
atccccgaca aggaacagggc gatcagcgcc ctgccggact acgcccagcca gccccggcaaa
1740
ccgcccgcgcg aggacctgaa gtaa
1764

<210> 3
<211> 1749
<212> DNA
<213> pCE2 plasmid coding sequence

<400> 3
atggatgtga agctggtggaa atctggagga ggcttagtgc agcctggagg gtccctgaaa
60
ctctcctgtg caacctctgg attcaacttgc agtactattt acatgtattt ggttcggccag
120
actccagaga agaggctgga gtgggtcgca tacattagta atgatgatag ttccggccgt
180
tattcagaca ctgtaaaggcccggttaccatctccagag acaatgccag gaacaccctc
240
tacctgcaaa tgagccgtct gaagtctgag gacacagcca tatattctgt tgcaagagga
300
ctggcctggg gagcctgggtt tgcttactgg ggcacaggaa ctctggtcac tgtctctgca
360
gccaaaacga caccccccatttgtctatcca ctggccctgt gatctgctgc ccaaactaac
420
tccatggtga ccctggatgcctggtaag ggctatttcc ctgagccagt gacagtgacc
480
tggaaactctg gatccctgtc cagcgggtgtg cacacattcc cagctgtcct gcagtctgac

540

ctctacactc tgagcagctc agtgactgtc ccctccagca cctggccag cgagaccgtc
600

acctgcaacg ttgcccaccc ggccagcagc accaaggtgg acaagaaaat tgtgcccagg
660

gattgtggta gtaagccttg cataagtaca aaagcttccg gaggtcccg gggcggcagc
720

ctggccgcgc tgaccgcga ccaggcttgc caccgtccgc tggagacttt caccgtcat
780

cgccagccgc gcggctggga acaactggag cagtgcggct atccgggtca gcggctggtc
840

gccctctacc tggcggcgcg gctgtcggtgg aaccaggtcg accaggtgat ccgcaacgcc
900

ctggccagcc ccggcagcgg cggcgacctg ggcaagcga tccgcgagca gccggagcag
960

ccccgtctgg ccctgaccct ggccgcccgc gagagcgagc gcttcgtccg gcagggcacc
1020

ggcaacgacg aggccggcgcc ggccaacggc cggcggaca gcggcgacgc cctgctggag
1080

cgcaactatc ccactggcgcc ggagttccctc ggcaacggcg gcaacgtcat cttcagcacc
1140

cgcggcacgc agaactggac ggtggagcgg ctgctccagg cgcaaccgcca actggaggag
1200

cgcggctatg tgttcgtcggtt accacacggc accttcctcg aagcggcgca aagcatcgca
1260

ttcgggggggg tgccgcgcgc cagccaggac ctgcacgcga tctggcgccgg tttctatatac
1320

gccggcgatc cggcgctggc ctacggctac gcccaggacc aggaaccgcga cgacacgcggc
1380

cggatccgca acgggtccct gctgcgggtc tatgtgccgc gctcgagccct gccgggcttc
1440

taccgcacca gcctgaccct ggccgcgcgc gaggcggcgg gcaacgggtcgac acggctgatc
1500

ggccatccgc tgccgcgtcg cctggacgcc atcaccggcc ccgaggagga aggcgggcgc
1560

ctggagacca ttctcggtcg gcccgtggcc gagcgcacccg tggtgattcc ctcggcgatc
1620

cccaccgacc cgcccaacgt cggcggcgac ctcgacccgt ccagcatccc cgacaaggaa
1680

caggcgatca gcgcctgccc ggactacgcc agccagcccg gcaaaccgccc gcgcgaggac
1740

ctgaagtaa

1749

<210> 4
<211> 672
<212> DNA
<213> pMC75 plasmid coding sequence

<400> 4
atggatgtgc ttagtgcacca gtctccattt agtttacctg tcagtcttgg agatcaagcc
60

tccatctctt gcagatcttag tcagatcatt gtacatagta atggaaacac ctattttagaa
120

tggtacctgc agaaaccagg ccagtctcca aagtcctga tctacaaagt ttccaaccga
180

ttttctgggg tcccgacag gttcagtgcc agtggatcag ggacagattt cacactcaag
240

atcagcagag tggaggctga ggatctggga gtttattact gcttcaagg ttcacatgtt
300

ccattcacgt tcggctcgaa gacaaagttt gaaataaaac gggctgtatgc tgcaccaact
360

gtatccatct tcccaccatc cagtgagcag ttaacatctg gaggtgcctc agtctgtgc
420

ttcttgaaca acttctaccc caaagacatc aatgtcaagt ggaagatgtt tggcagtgtt
480

cgacaaaatg gcgtcctgaa cagttggact gatcaggaca gcaaagacag cacctacagc
540

atgagcagca ccctcacgtt gaccaaggac gagttatgtt gacataacag ctatacctgt
600

gaggccactc acaagacatc aacttcaccc attgtcaaga gcttcaacag gaatgagtgt
660

ggtaaagctt aa
672

<210> 5
<211> 2454
<212> DNA
<213> pLSC52 plasmid coding sequence

<400> 5
atggatgtga agctggtgga atctggagga ggcttagtgc agcctggagg gtccctgaaa
60

ctctccgtt caacctctgg attcactttc agtacttattt acatgttattt ggttcggccag
120

actccagaga agaggctgga gtgggtcgca tacattagta atgtatgtt tagtgcgtt
180

tattcagaca ctgtaaaggg ccgggttaccatctccagag acaatgcccgg
240

tacctgcaaa tgagccgtct gaagtctgag gacacagcca tatattcctg tgcaagagga
300
ctggcctggg gagcctggtt tgcttactgg ggccaaggga ctctggcac tgtctctgca
360
gccaaaacga caccccccata tgtctatcca ctggcccctg gatctgctgc ccaaactaac
420
tccatggtga ccctgggatg cctggtcaag ggctattcc ctgagccagt gacagtgacc
480
tggaaactctg gatccctgtc cagcggtgtg cacaccttcc cagctgtcct gcagtcgtac
540
ctctacactc tgagcagctc agtgactgtc ccctccagca cctggcccaag cgagaccgtc
600
acctgcaacg ttgcccaccc ggccagcagc accaagggtgg acaagaaaaat tgtgcccagg
660
gattgtggtg agcccaaatac ttgtgacaaa actcacacat gcccaccgtg cccagcacct
720
gaactcctgg ggggaccgtc agtcttcctc ttccccccaa aacccaagga caccctcatg
780
atctcccgga cccctgaggt cacatgcgtg gtggggacg tgagccacga agaccctgag
840
gtcaaggta actggtaactg ggacggcgtg gagggtcata atgccaagac aaagccgcgg
900
gaggagcagt acaacagcac gtaccgtgtg gtcaagcgtcc tcaccgtcct gcaccaggac
960
tggctgaatg gcaaggagta caagtgcag gtctccaaca aagccctccc agccccatc
1020
gagaaaaacca tctccaaagc caaagggcag ccccgagaac cacaggtgta caccctgccc
1080
ccatcccggt atgagctgac caagaaccag gtcagcctga cctgcctggt caaaggcttc
1140
tatcccagcg acatgcgtt ggagtgggag agcaatgggc agccggagaa caactacaag
1200
accacgcctc ccgtgctgga ctccgacggc tccttcttcc tctacagcaa gtcaccgtg
1260
gacaagagca ggtggcagca ggggaacgtc ttctcatgct ccgtgatgca tgaggctctg
1320
cacaaccact acacgcagaa gagcctctcc ctgtctccgg gtaaaggcgg aggcggatcc
1380
ggtgtggcg gttctaaagc ttccggaggt cccgaggcg gcagcctggc cgcgtgacc
1440
gcgccaccagg cttgccacct gccgctggag actttcaccc gtcatcgcca gccgcgcggc
1500

tgggaacaac tggagcagtg cggttatccg gtgcagcggc tggtcgcctt ctacctggcg
 1560
 gcgccgctgt cgttggAACCA ggtcgaccAG gtatccgca acgcccTggc cagccccggc
 1620
 agcggcggcg acctgggcga agcgatccgc gagcagccgg agcaggcccg tctggccctg
 1680
 accctggccg ccggcggagag cgagcgcttc gtccggcagg gcaccggcaa cgacgaggcc
 1740
 ggcgcggcca acggccggc ggacagcggc gacgcctgc tggagcgcaa ctatcccact
 1800
 ggcgcggagt tcctcggcga cggcggcgac gtcagcttca gcacccggcgg cacgcagaac
 1860
 tggacgggtgg agcggctgct ccaggcgcac cgccaaactgg aggagcgcgg ctatgtgttc
 1920
 gtcggctacc acggcacctt cctcgaagcg gcgcaaagca tcgtcttcgg cgggggtgcgc
 1980
 ggcgcgcagcc aggacctcga cgcgatctgg cgcggtttct atatcgccgg cgatccggcg
 2040
 ctggcctacg gctacgcccgg accaggagaa cccgacgcac gggccggat ccgcacacgg
 2100
 gcccgtgtgc gggtctatgt gccgcgtcg agcctgcgg gcttctaccg caccagcctg
 2160
 accctggccg cgccggaggc ggcggggcag gtcgaacggc tgcgtggcca tccgtggccg
 2220
 ctgcgcctgg acgcacatcac cggcccccgg gaggaaggcg ggcgcctggaa gaccattctc
 2280
 ggctggccgc tggccgagcg caccgtggtg attccctcg cgatccccac cgacccggcgc
 2340
 aacgtcgccg ggcacctcga cccgtccagc atccccgaca aggaacaggc gatcagcgcc
 2400
 ctgcccggact acgcccagcca gcccggcaaa cggccgcgcg aggacctgaa gtaa
 2454

<210> 6
 <211> 1233
 <212> DNA
 <213> pKL4 plasmid coding sequence

<400> 6
 atgcacatcacc atcaccatca cgatgtgaag ctgggtggat ctggaggagg ctttagtgcag
 60
 120
 cctggagggt ccctgaaact ctcctgtgca acctctggat tcactttcag tgactattac
 120
 atgttattggg ttgcgcagac tccagagaag aggctggagt gggtcgcata cattagtaat

180

gatgatagtt ccggcgctta ttcagacact gtaaagggcc ggttcaccat ctccagagac
240

aatgccagga acaccctcta cctgcaaatg agccgtctga agtctgagga cacagccata
300

tattcctgtg caagaggact ggcctggga gcctggtttg cttactgggg ccaaggact
360

ctggtcactg tctctgcagc caaaacgaca ccccatctg tctatccact ggcccctgga
420

tctgctgccc aaactaactc catggtgacc ctgggatgcc tggtaaggg ctattccct
480

gagccagtga cagtgacctg gaactctgga tccctgtcca gcggtgtgca cacttccca
540

gctgtcctgc agtctgacct ctacactctg agcagctcag tgactgtccc ctccagcacc
600

tggccagcg agaccgtcac ctgcaacgtt gcccacccgg ccagcagcac caaggtggac
660

aagaaaattg tgcccaggga ttgtgggtct aagccttgca tagctacaca agttccggt
720

ggtggcggat ctggaggtgg cggaagcggg ggtcccgagg tgacaggggg aatggcaagc
780

aagtgggatc agaagggtat ggacattgcc tatgaggagg cggccttagg ttacaaagag
840

ggtgtgttc ctattggcgg atgtcttatac aataacaaag acggaagtgt tctcggtcgt
900

ggtcacaaca tgagatttca aaaggatcc gccacactac atggtagat ctccactttg
960

gaaaactgtg ggagattaga gggcaaagtg tacaagata ccactttgta tacgacgctg
1020

tctccatgca acatgtgtac aggtgccatc atcatgtatg gtattccacg ctgtgttgtc
1080

ggtgagaacg ttaatttcaa aagtaagggc gagaatatt tacaacttag aggtcacgag
1140

gttgggttttgg ttgacgatga gaggtgtaaa aagatcatga aacaatttat cgatgaaaga
1200

cctcaggatt ggttgaaga tattggtgag tag
1233

<210> 7

<211> 4871

<212> DNA

<213> pMC74 plasmid full sequence

<400> 7

taatacgact cactataggg agaccacaac ggttccctc tagaaataat ttttttaac
60

ttaagaagg agatatacat atggatgtga agctggtgg aatctggagga ggcttagtgc
120

agcctggagg gtccctgaaa ctctcctgtg caacctctgg attcacttc agtacttatt
180

acatgtattt ggttcgcccag actccagaga agaggctgg aatgggtcgca tacatttagta
240

atgtatgatag ttccgcccgt tattcagaca ctgtaaagg ccgttccacc atctccagag
300

acaatgccag gaacaccctc tacctgcaaa tgagccgtct gaagtctgag gacacagcca
360

tatattcctg tgcaagagga ctggcctggg gagcctggtt tgcttactgg ggccaaggga
420

ctctggtcac tgtctctgca gccaaaacga caccatccatc tgtctatcca ctggccctg
480

gatctgctgc ccaaactaac tccatggtga ccctggatg cctggtaag ggctattcc
540

ctgagccagt gacagtgacc tggaactctg gatccctgtc cagcgggttg cacacattcc
600

cagctgtcct gcagtctgac ctctacactc tgagcagctc agtactgtc ccctccagca
660

cctggcccaag cgagaccgtc acctgcaacg ttgcccaccc ggccagcagc accaagggtgg
720

acaagaaaat tggcccaagg gattgtggta gtaaggctag cataagtaca aaagttccg
780

gaggtcccga gggccgcagc ctggccgcgc tgaccgcga ccaggcttc cacctgccgc
840

tggagacttt caccgtcat cgccagccgc gcggtggg acaactggag cagtgcggct
900

atccggtgca gcggctggc gccctctacc tggccgcgc gctgtcgtgg aaccagggtcg
960

accaggtgat ccgcaacgcc ctggccagcc cggcagcgg cggcgcacctg ggcgaagcga
1020

tccgcgagca gccggagcag gcccgtctgg ccctgaccct ggccgcgc gagagcgc
1080

gcttcgtccg gcagggcacc ggcaacgacg agggccggcgc ggccaaacggc cggcggaca
1140

gccccgcacgc cctgctggag cgcaactatc ccactggcgc ggagttccctc ggcgacggcg
1200

gacgtcag cttcagcacc cgccgcacgc agaactggac ggtggagcgg ctgctccagg
1260

cgcacccgcca actggaggag cgccgctatg tgttcgtcggttaccacggc accttcctcg
1320

aagcggcgca aagcatcgta ttcggcgaaaa tgccgcgcgc cagccaggac ctcgacgcga
1380

tctggcgccgg tttctataatc gccggcgatc cggcgctggc ctacggctac gcccaggacc
1440

aggaacccga cgcacgcggc cggatccgca acgggtccct gctgcgggtc tatgtgccgc
1500

gctcgagcct gccgggcttc taccgcacca gcctgaccct ggccgcgcgg gaggcgccgg
1560

gcgagggtcga acggctgatc ggcattccgc tgccgctgca cctggacgcc atcaccggcc
1620

ccgaggagga aggcgggcgc ctggagacca ttctcggctg gccgctggcc gagcgcaccc
1680

tggtGattcc ctccggcgatc cccaccgacc cgcccaacgt cggcgccgac ctgcacccgt
1740

ccagcatccc cgacaaggaa caggcgatca gcgcctgccc ggactacgcc agccagcccg
1800

gcaaaccgccc gcgcgaggac ctgaagtaac tgccgcacc ggccggctcc cttcgcagga
1860

gccggccttc tcggggcctg gccatacatc aggttttctt gatgccagcc caatcgaata
1920

tgaattcggc tgctaacaaa gcccggaaagg aagctgagtt ggctgctgcc accgctgagc
1980

aataactagc ataaccctt gggcctctaa acgggtcttg aggggtttt tgctgaaagg
2040

aggaactata tccggatcgg agatcaattc tggcgtaata gcgaagagggc ccgcaccgat
2100

cgccttcccc aacagttcgtagcctgaat ggcaatggg acgcgcctg tagcgccgca
2160

ttaagcgcgg cgggtgtggt ggttacgcgc agcgtgaccg ctacacttgc cagcgcctta
2220

gcgcggcgtc ctttcgtttt cttcccttcc ttttcgtccca ctttcgcggg ctttccccgt
2280

caagctctaa atcgggggct cccttaggg ttccgattta gtgtttacg gcacccgcac
2340

ccccaaaaaaac ttgatttaggg tggatggtca cgtatgggc catgcgcctg atagacggtt
2400

tttcgcctt tgacgttggaa gtccacgttc tttaatagtg gactcttggtt ccaaactggaa
2460

acaacactca accctatctc ggtctattct tttgatttt aagggtttt gccgatttcg
2520

gcctatttgt taaaaatga gctgatttaa caaaaattta acgcgaattt taacaaaata
2580

ttaacgtta caatttcagg tggcactttt cggggaaatg tgcgcgaaac ccctattgt
2640

ttattttct aaatacatc aaatatgtat ccgctcatga gacaataacc ctgataaaatg
2700

cttcaataat attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt
2760

cccttttg cggcattttg cttcctgtt tttgctcacc cagaaacgct ggtgaaagta
2820

aaagatgctg aagatcagtt gggtgcacga gtgggttaca tcgaactgga tctcaacagc
2880

ggtaagatcc ttgagagttt tcgccccaa gaacgtttc caatgtatgag cactttaaa
2940

gttctgctat gtggcgcgg attatccgt attgacgccc ggcaagagca actcggtcgc
3000

cgcatacact attctcagaa tgacttggtt gagtactcac cagtcacaga aaagcatctt
3060

acggatggca tgacagtaag agaattatgc agtgctgcc taagcatgag tgataacact
3120

gcggccaact tacttctgac aacgatcggg ggaccgaagg agctaaccgc ttttttcac
3180

aacatggggg atcatgtaac tcgccttgat cgttggaaac cggagctgaa tgaagccata
3240

ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg caacaacgtt gcgcaaacta
3300

ttaactggcg aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg
3360

gataaaagttt caggaccact tctgcgcctcg gcccttccgg ctggctggtt tattgctgat
3420

aaatctggag ccggtgagcg tgggtctcgc ggtatcattt cagcactggg gccagatgg
3480

aagccctccc gtatcgtagt tatctacacg acgggcagtc aggcaactat ggatgaacga
3540

aatagacaga tcgctgagat aggtgcctca ctgattaagc attggtaact gtcagaccaa
3600

gtttactcat atatacttta gattgattta aaacttcatt tttaatttaa aaggatctag
3660

gtgaagatcc ttttgataa tctcatgacc aaaatccctt aacgtgagtt ttcgttccac
3720

tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatcctt ttttctgcgc
3780

gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cggtggtttgc ttggccggat
3840
caagagctac caactctttt tccgaaggta actggctca gcagagcgca gataccaaat
3900
actgtccttc tagtgttagcc gtagttaggc caccacttca agaactctgt agcacccgc
3960
acatacacccg ctctgctaatt cctgttacca gtggctgctg ccagtggcga taagtcgtgt
4020
cttaccgggt tggactcaag acgatagttt ccggataagg cgccagcgac gggctgaacg
4080
gggggttcgt gcacacagcc cagcttggag cgaacgaccc acaccgaact gagataccta
4140
cagcgtgagc attgagaaag cgccacgcctt ccggaaaggaa gaaaggcgga caggtatccg
4200
gtaagcggca gggtcggaac aggagagcgc acgagggagc ttccaggggg gaacgcctgg
4260
tatcttata gtcctgtcgg gtttcgcac ctctgacttg agcgtcgatt tttgtgatgc
4320
tcgtcaggggg ggcccgagcct atggaaaaac gccagcaacg cggcctttt acggttcctg
4380
gcctttgct ggccctttgc tcacatgttc tttcctgcgt tataccctga ttctgtggat
4440
aaccgtattt ccgcctttga gtgagctgat accgctcgcc gcagccgaac gaccgagcgc
4500
agcgagtcag tgagcgagga agcggaaagag cgcctgatgc ggtattttct ctttacgc
4560
ctgtcggttta tttcacacccg catatatggt gcactctcag tacaatctgc tctgtatgc
4620
catagtttaag ccagtataca ctccgctatc gctacgtgac tgcaaggaga tggcgcccaa
4680
cagtcccccg gccacggggc ctgccaccat acccacgccc aaacaagcgc tcatgagccc
4740
gaagtggcga gcccgtatctt ccccatcggt gatgtcgccg atataggcgc cagcaaccgc
4800
acctgtggcg ccgggtgatgc cggccacgat gcgtccggcg tagaggatct tgagatctcg
4860
atcccgaaaa t
4871

<210> 8
<211> 4886
<212> DNA
<213> pMH21 plasmid full sequence

<400> 8
taatacgact cactataggg agaccacaac ggttccctc tagaaataat tttgttaac
60
tttaagaagg agatatacat atggaggtga agctggtgga atctggagga ggcttagtgc
120
agcctggagg gtccctgaaa ctctcctgtg caacctctgg attcaacttc agtgaactatt
180
acatgtattg ggttcgccag actccagaga agaggctgga gtgggtcgca tacatttagta
240
atgatgatag ttccgcccgt tattcagaca ctgtaaaggg ccggttcacc atctccagag
300
acaatgccag gaacaccctc tacctgcaaa tgagccgtct gaagtctgag gacacagcca
360
tatattcctg tgcaagagga ctggcctggg gagcctggtt tgcttactgg ggccaaggga
420
ctctggtcac tgtctctgca gccaaaacga cacccccattc tgtctatcca ctggccctg
480
gatctgctgc ccaaactaac tccatggtga ccctggatg cctggtcaag ggctattcc
540
ctgagccagt gacagtgacc tggaaactctg gatccctgtc cagcggtgtg cacacattcc
600
cagctgtcct gcagtctgac ctctacactc tgagcagctc agtgaactgtc ccctccagca
660
cctggcccaag cgagaccgtc acctgcaacg ttgcccaccc ggccagcagc accaaggtgg
720
acaagaaaaat tgtgcccagg gattgtggta gtaagcatttgc cataagtaca aaagcttctg
780
gtgggtggcg atctggaggt cccgaggcg gcagcctggc cgcgctgacc ggcaccagg
840
cttgcaccc ggcgctggag actttcaccc gtcatgcaca gccgcgcggc tggaaacaac
900
tggagcagt cggctatccg gtgcagcggc tggtcgcctt ctacctggcg ggcggctgt
960
cgtggaaacca ggtcgaccag gtgatccgca acgcctggc cagccccggc agcggcggcg
1020
acctggcga agcgatccgc gagcagccgg agcaggcccg tctggccctg accctggccg
1080
ccgcccggagag cgagcgcttc gtccggcagg gcacccggcaa cgacgaggcc ggcgcggcca
1140
acggccccggc ggacagcggc gacgcctgc tggagcgcaa ctatcccact ggcgcggagt
1200
tcctcggcga cggcggcgac gtcagcttca gcacccggc cacgcagaac tggacggtg
1260

agcggctgct ccaggcgcac cgccaaactgg aggagcgcgg ctatgtttc gtcggctacc
1320
acggcacctt cctcgaagcg gcgcaaagca tcgtttcgg cgggtgcgc ggcgcagcc
1380
aggacctcga cgcgatctgg cgcggttct atatcgccgg cgatccggcg ctggctacg
1440
gctacgcccga ggaccaggaa cccgacgcac gcgccggat ccgcaacggt gcccgtgc
1500
gggtctatgt gccgcgtcg agcctgcccgg gtttctaccg caccagcctg accctggccg
1560
cgccggaggc ggcggcgag gtcgaacggc tgatcgcca tccgctgccg ctgcgcctgg
1620
acgcacatcac cggcccgag gaggaaggcg ggcgcctgga gaccattctc ggctggccgc
1680
tggccgagcg caccgtggtg attccctcg cgatccccac cgacccgcgc aacgtcggcg
1740
gacgacctcga cccgtccagc atccccaca aggaacaggc gatcagcgcc ctgcccggact
1800
acgcccagcca gcccggcaaa ccgcccgcgcg aggacctgaa gtaactgccg cgaccggccg
1860
gctcccttcg caggagccgg ctttcgggc gcctggccat acatcagggtt ttcctgtatgc
1920
cagcccaatc gaatatgaat tcggctgcta acaaagcccg aaaggaagct gagttggctg
1980
ctgccaccgc tgagcaataa ctagcataac cccttggcc tctaaacggg tcttgagggg
2040
tttttgctg aaaggaggaa ctatatccgg atcggagatc aattctggcg taatagcgaa
2100
gaggcccgca ccgatcgccc ttcccaacag ttgcgtagcc tgaatggcga atgggacgcg
2160
ccctgttagcg ggcattaaag cgccgggggt gtgggttta cgccgcagcgt gaccgctaca
2220
cttgccagcg ccctagcgcc cgctccttcc gtttcttcc cttccttct cgccacgttc
2280
gcccgtttc cccgtcaagc tctaaatcg gggctccctt tagggttccg atttagtgc
2340
ttacggcacc tcgacccaa aaaacttgat tagggtgatg gttcacgtag tggccatcg
2400
ccctgtataga cgggtttcg cccttgacg ttggagtcca cgttcttta tagtggactc
2460
ttgttccaaa ctggaacaac actcaaccct atctcggtct attctttga tttataaggg
2520

attttgcga tttcggccta ttggtaaaa aatgagctga tttaacaaa atttaacgcg
2580

aatttaaca aaatattaac gtttacaatt tcaggtggca ctttcgggg aatgtgcgc
2640

ggaacccta tttgtttatt tttctaaata cattcaaata tgtatccgct catgagacaa
2700

taaccctgat aaatgcttca ataatattga aaaaggaaga gtatgagtat tcaacatttc
2760

cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgttttgc tcacccagaa
2820

acgctggta aagtaaaaaga tgctgaagat cagttgggtg cacgagtggg ttacatcgaa
2880

ctggatctca acagcggtaa gatcctttag agtttgcgc ccgaagaacg ttttccaatg
2940

atgagcactt ttaaagttct gctatgtggc gcgttattat cccgtattga cgccggcaa
3000

gagcaactcg gtcgcccgc acactattct cagaatgact tggttgagta ctcaccagtc
3060

acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc tgccataagc
3120

atgagtgata acactgcggc caacttactt ctgacaacga tcggaggacc gaaggagcta
3180

accgctttt ttacacaacat ggggatcat gtaactcgcc ttgatcggtt ggaaccggag
3240

ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgtac aatggcaaca
3300

acgttgcgca aactattaac tggcgaacta cttactctag cttccggca acaattaata
3360

gactggatgg aggcggataa agttgcagga ccacttctgc gctcggccct tccggctggc
3420

tggtttattt ctgataaatac tggagccgtt gagcgtgggt ctcgcgttat cattgcagca
3480

ctggggccag atggtaagcc ctcccgatc gtagttatct acacgacggg cagtcaggca
3540

actatggatg aacgaaatag acagatcgct gagataggtg cctcactgat taagcattgg
3600

taactgtcag accaagttta ctcatatata ctttagattt atttaaaact tcattttaa
3660

tttaaaaagga tctaggtgaa gatcctttt gataatctca tgacccaaat cccttaacgt
3720

gagtttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc ttcttgagat
3780

ccttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct accagcggtg
 3840

gtttgttgc cggatcaaga gctaccaact cttttccga aggttaactgg cttagcaga
 3900

gcgcgataac caaatactgt ctttctagtg tagccgtgt taggccacca cttcaagaac
 3960

tctgttagcac cgcc tacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt
 4020

ggcgataagt cgtgtcttac cgggttggac tcaagacgt agttaccgga taaggcgcag
 4080

cggtcgggct gaacgggggg ttcgtgcaca cagccagct tggagcgaac gacctacacc
 4140

gaactgagat acctacagcg tgagcattga gaaagcgcca cgcttccga agggagaaag
 4200

gcgacacagg atccggtaag cggcagggtc gjaacaggag agcgcacgag ggagcttcca
 4260

ggggggaacg cctggtatct ttatagtcct gtcgggttc gccacctctg acttgagcgt
 4320

cgattttgt gatgctcgac agggggccg agcctatgga aaaacgcac caacgcggcc
 4380

ttttacggc ttctggcctt ttgctggcct tttgctcaca ttttcttcc tgcgttatcc
 4440

cctgattctg tggataacccg tattaccgac tttgagtgag ctgataccgc tcgcgcgc
 4500

cgaacgaccg agcgcagcg gtcagtgagc gaggaaagcgg aagagcgct gatgcggat
 4560

tttctccta cgcattgtcg cggattttca caccgcatat atggtgact ctcagtacaa
 4620

tctgctctga tgccgcata gttagccagt atacactccg ctatcgctac gtgactgcaa
 4680

ggagatggcg cccaaacagtc ccccgccac ggggcctgcc accataccca cgccgaaaca
 4740

agcgctcatg agcccgaagt ggcgagcccg atttccccca tcggtgatgt cggcgatata
 4800

ggcgccagca accgcacccgt tggcgccggat gatgccggcc acgatgcgtc cggcgtagag
 4860

gatcttgaga tctcgatccg cgaaat
 4886

<210> 9
 <211> 4871
 <212> DNA
 <213> pCE2 plasmid full sequence

<400> 9
taatacact cactataggg agaccacaac ggttccctc tagaaataat tttgttaac
60
tttaagaagg agatatacat atggatgtga agctggtgga atctggagga ggcttagtgc
120
agcctggagg gtccctgaaa ctctcctgtg caacctctgg attcacttgc agtacttatt
180
acatgtatttgg ggtcgccag actccagaga agaggctggatgtggatcgca tacatttagta
240
atgtatgatag ttccgcccgttattcagaca ctgtaaaggccgggttccacc atctccagag
300
acaatgccag gaacaccctc tacctgcaaa tgagccgtct gaagtctgag gacacagcca
360
tatattcctgtcaagagga ctggcctggggaggggggggggggggggggggggggggggggggg
420
ctctggtcac tgtctctgca gccaaaacga caccggccatc tgtctatcca ctggcccccgt
480
gatctgctgc ccaaactaac tccatggtgc ccctggatgc cctggtaag ggctatttcc
540
ctgagccagt gacagtgacc tggaactctgtgc cagcggtgtg cacaccccttcc
600
cagctgtcct gcagtctgac ctctacactc tgagcagctc agtgcactgtc ccctccagca
660
cctggcccaag cgagaccgtc acctgcaacg ttgcccaccc ggccagcagc accaagggtgg
720
acaagaaaaat tggcccaagg gattgtggta gtaagccttg cataagtaca aaagcttccg
780
gaggtccccga gggcgccagc ctggccgcgc tgaccgcgc ccaggcttgc cacctgcgc
840
tggagacttt cacccgtcat cgccagccgc gcgctggga acaactggag cagtgccgc
900
atccggtgca gcggctggtc gccccttacc tggccgcgc gctgtcgtgg aaccagggtcg
960
accagggtat ccgcaacgcc ctggccagcc ccggcagcgg cggcgcacctg ggcgaagcga
1020
tccgcgagca gccggagcag gcccgtctgg ccctgaccct ggccgcccggc gagagcggc
1080
gcttcgtccg gcagggcacc ggcaacgacg agggccggcgc ggccaaacggc cggcggaca
1140
gcggcgcacgc cctgctggag cgcaactatc ccactggcgc ggagttccctc ggacggc
1200
gacgtcag cttcagcacc cgccgcacgc agaactggac ggtggagcgg ctgctccagg

1260

cgcaccgcca actggaggag cgccggctatg tgttcgtcgg ctaccacggc accttcctcg
1320

aagcggcgca aagcatcgtc ttccgggggg tgccgcgcg cagccaggac ctcgacgcga
1380

tctggcgcgg tttctatatac gccggcgatc cggcgctggc ctacggctac gcccaggacc
1440

aggaacccga cgcacgcggc cggatccgca acgggtccct gctgcgggtc tatgtgccgc
1500

gctcgagcct gccgggcttc taccgcacca gcctgaccct ggccgcgccc gaggcggcgg
1560

gcgagggtcga acggctgatc ggccatccgc tgccgctgcg cctggacgcc atcaccggcc
1620

ccgaggagga aggccggcgc ctggagacca ttctcggtc gcccgtggcc gagcgcaccg
1680

tggtattcc ctcggcgatc cccaccgacc cgccaaacgt cggcgccgac ctcgaccgc
1740

ccagcatccc cgacaaggaa caggcgatca gcgcctgccc ggactacgccc agccagcccg
1800

gcaaaccgccc gcgcgaggac ctgaagtaac tgccgcgacc ggccggctcc cttcgccagga
1860

gccggccttc tcggggcctg gccatacatc aggtttcct gatgccagcc caatcgaaa
1920

tgaattcgcc tgctaaacaaa gcccggaaagg aagctgagtt ggctgctgcc accgctgagc
1980

aataacttagc ataaccctt gggcctctaa acgggtcttg aggggttttt tgctgaaagg
2040

aggaactata tccggatcg agatcaattc tggcgtaata gcgaagagggc ccgcaccgat
2100

cgccttccc aacagttgcg tagcctgaat ggcgaatggg acgcgcctg tagcggcgca
2160

ttaagcgcgg cgggtgtggt gtttacgcgc agcgtgaccg ctacacttgc cagcgcctta
2220

gcgcgcctc ctttcgttt cttcccttcc ttttcgtcca ctttcgcgg ctttccccgt
2280

caagctctaa atcgggggct cccttaggg ttccgattta gtgtttacg gcaccccgac
2340

cccaaaaaac ttgatttaggg tggatggtca cgtatgggc catgcgcctg atagacgggt
2400

tttcgcctt tgacgttggc gtccacgttc tttaatagtg gactcttggc ccaaacttgaa
2460

acaacactca accctatctc ggtctattct ttgttatttt aaggatattt gccgatttcg

2520

gcctatttgt taaaaaatga gctgatttaa caaaaattta acgcgaattt taacaaaata
2580

ttaacgttta caatttcagg tggactttt cggggaaatg tgcgcggAAC ccctatttgt
2640

ttatTTTCT aaatacattc aaatatgtat ccgctcatga gacaataacc ctgataaaatg
2700

cttcaataat attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt
2760

ccctttttg cggcattttg cttcctgtt tttgctcacc cagaaacgct ggtgaaagta
2820

aaagatgctg aagatcagtt gggcacga gtgggttaca tcgaactgga tctcaacagc
2880

ggtaagatcc ttgagagttt tcgccccaa gaacgtttc caatgatgag cactttaaa
2940

gttctgctat gtggcgcgg attatccgtt attgacgccc ggcaagagca actcggtcgc
3000

cgcatacact attctcagaa tgacttggtt gagtaactcac cagtcacaga aaagcatctt
3060

acggatggca tgacagtaag agaattatgc agtgctgcca taagcatgag tgataaacact
3120

gcggccaact tacttctgac aacgatcggaa ggaccgaagg agctaaccgc ttttttcac
3180

aacatggggg atcatgtaac tcgccttgat cgttggaaac cggagctgaa tgaagccata
3240

ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg caacaacggtt ggcacaaacta
3300

ttaactggcg aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg
3360

gataaagttt caggaccact tctgcgctcg gcccttccgg ctggctggtt tattgctgat
3420

aaatctggag ccggtgagcg tgggtctcgc ggtatcattt cagcactggg gccagatgg
3480

aagccctccc gtatcgtagt tatctacacg acgggcagtc aggcaactat ggatgaacga
3540

aatagacaga tcgctgagat aggtgcctca ctgattaagc attggtaact gtcagaccaa
3600

gtttactcat atatacttta gattgattta aaacttcatt tttatTTAA aaggatctag
3660

gtgaagatcc tttttgataa tctcatgacc aaaatccctt aacgtgagtt ttcgttccac
3720

tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccctt ttttctgcgc

3780

gtaatctgct gcttgcaaac aaaaaaacc aaccgttaccag cgggtggttt gttgccggat
3840

caagagctac caactcttt tccgaaggta actggcttca gcagagcgca gataccaaat
3900

actgtcccttc tagtgttagcc gtagtttaggc caccacttca agaactctgt agcaccgcct
3960

acatacctcg ctctgctaat cctgttacca gtggctgctg ccagtggcga taagtcgtgt
4020

cttaccgggt tggactcaag acgataagtta ccggataagg cgcaagcggc gggctgaacg
4080

gggggttcgt gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta
4140

cagcgtgagc attgagaaaag cgccacgctt cccgaaggga gaaaggcggg caggtatccg
4200

gtaaggcggca gggtcggaac aggagagcgc acgagggagc ttccaggggg gaacgcctgg
4260

tatctttata gtcctgtcgg gtttcgacac ctctgacttg agcgtcgatt tttgtatgc
4320

tcgtcagggg ggccgagcct atggaaaaac gccagcaacg cggcctttt acggttcctg
4380

gcctttgct ggcctttgc tcacatgttc tttcctgcgt tatcccctga ttctgtggat
4440

aaccgttata ccgccttga gtgagctgat accgctcgcc gcagccgaac gaccgagcgc
4500

agcgagtcag tgagcgagga agcggaaagag cgcctgatgc ggtatttct cttacgcatt
4560

ctgtgcggta tttcacacccg catatatggt gcactctcag tacaatctgc tctgatgccg
4620

catagttaag ccagtataca ctccgctatac gctacgtgac tgcaaggaga tggcgcccaa
4680

cagcccccg gccacggggc ctgccaccat acccacgccc aaacaagcgc tcatgagccc
4740

gaagtggcga gcccgcattt ccccatcggt gatgtcgccg atataaggcgc cagcaaccgc
4800

acctgtggcg ccgggtgatgc cggccacgat gcgtccggcg tagaggatct tgagatctcg
4860

atccgcgaaa t
4871

<210> 10
<211> 3703
<212> DNA

<213> pMC75 plasmid full sequence

<400> 10
taatacgact cactataggg agaccacaac ggttccctc tagaaataat tttgtttaac
60
tttaagaagg agatatacat atggatgtgc ttagtgcacca gtctccattt agtttacctg
120
tcagtcttgg agatcaagcc tccatctttt gcagatctag tcagatcatt gtacatagta
180
atggaaacac ctatttagaa tggtaacctgc agaaaccagg ccagtctcca aagctcctga
240
tctacaaagt ttccaaccga ttttctgggg tcccagacag gttcagtggc agtggatcag
300
ggacagattt cacactcaag atcagcagag tggaggctga ggatctggga gtttattact
360
gctttcaagg ttcacatgtt ccattcacgt tcggctcggg gacaaagttt gaaataaaac
420
gggctgatgc tgcaccaact gtatccatct tcccaccatc cagtgcgcag ttaacatctg
480
gaggtgcctc agtcgtgtgc ttcttgaaca acttctaccc caaagacatc aatgtcaagt
540
ggaagattga tggcagtgaa cgacaaaatg gcgtcctgaa cagttggact gatcaggaca
600
gcaaaagacag cacctacagc atgagcagca ccctcacgtt gaccaaggac gagttatgaaac
660
gacataacag ctatacctgt gaggccactc acaagacatc aacttcaccc attgtcaaga
720
gcttcaacag gaatgagtgt ggttaaagctt aatgaattcg gctgctaaca aagcccgaaa
780
ggaagctgag ttggctgctg ccaccgctga gcaataacta gcataacccc ttgggcctct
840
aaacgggtct tgaggggttt tttgctgaaa ggaggaacta tatccggatc ggagatcaat
900
tctggcgtaa tagcgaagag gcccgcaccc atcgcccttc ccaacagttt cgtagcctga
960
atggcgaatg ggacgcgccc tggcgccgc cattaagcgc ggcgggtgtg gtgggtacgc
1020
gcagcgtgac cgctacactt gccagcggcc tagcgcggc tccttcgtt ttctccctt
1080
cctttctcgc cacgttcgcc ggcttcccc gtcaagctct aaatcggggg ctcccttag
1140
ggttcccgatt tagtgcttta cggcacctcg accccaaaaa acttgatttag ggtgatggtt
1200

cacgtagtgg gccatcgccc tgatagacgg ttttcgccc tttgacgtt gagtccacgt
1260

tcttaatacg tggactcttg ttccaaactg gaacaacact caaccctatc tcggcttatt
1320

ctttgattt ataaggatt ttgccgattt cgccctattt gttaaaaat gagctgattt
1380

aacaaaaatt taacgcgaat tttaacaaaa tattaacgtt tacaatttca ggtggcactt
1440

ttcggggaaa tgtgcgcgga acccctattt gtttattttt ctaaatacat tcaaataatgt
1500

atccgctcat gagacaataa ccctgataaa tgcttcaata atattaaaa aggaagagta
1560

tgagtattca acatttccgt gtcgcctta ttccctttt tgcggcattt tgccttcctg
1620

ttttgctca cccagaaacg ctggtaaaag taaaagatgc tgaagatcag ttgggtgcac
1680

gagtgggtta catcgaactg gatctcaaca gcggtaagat ctttgagagt tttcgcccg
1740

aagaacgtt tccaatgtatg agcacttttta aagttctgct atgtggcgcg gtattatccc
1800

gtattgacgc cggcaagag caactcggtc gcccataca ctattctcag aatgacttgg
1860

ttgagtactc accagtcaca gaaaagcatc ttacggatgg catgacagta agagaattat
1920

cgagtgcgc cataagcatg agtgataaca ctgcggccaa cttacttctg acaacgatcg
1980

gaggaccgaa ggagctaacc gcttttttc acaacatggg ggatcatgta actcgccctg
2040

atcggtggga accggagctg aatgaagcca taccaaacga cgagcgtgac accacgatgc
2100

ctgttagcaat ggcaacaacg ttgcgcaaac tattaactgg cgaactactt actctagtt
2160

cccgcaaca attaatagac tggatggagg cggataaaagt tgcaggacca cttctgcgt
2220

cggcccttcc ggctggctgg tttattgctg ataaatctgg agccggtgag cgtgggtctc
2280

gcggtatcat tgcaagcactg gggccagatg gtaagccctc ccgtatcgta gttatctaca
2340

cgacgggcag tcaggcaact atggatgaac gaaatagaca gatcgctgag ataggtgcct
2400

cactgattaa gcattggtaa ctgtcagacc aagtttactc atatatactt tagattgatt
2460

taaaaactca ttttaattt aaaaggatct aggtgaagat ccttttgat aatctcatga
2520

ccaaaatccc ttaacgtgag tttcgttcc actgagcgta agaccccgta gaaaagatca
2580

aaggatcttc ttgagatcct tttttctgc gcgtaatctg ctgcttgc当地 aaaaaaaaaac
2640

caccgctacc agcgggtggtt tggttgc当地 atcaagagct accaactctt tttccgaagg
2700

taactggctt cagcagagcg cagataccaa atactgtcct tctagtgttag ccgtagttag
2760

gccaccactt caagaactct gtagcaccgc ctacatacct cgctctgcta atcctgttac
2820

cagtggtgc tgccagtgcc gataagtcgt gtcttaccgg gttggactca agacgatag
2880

tacccgataa ggccgagcgg tcgggctgaa cgggggttc gtgcacacag cccagcttgg
2940

agcgaacgac ctacaccgaa ctgagatacc tacagcgtga gcattgagaa agcgc当地
3000

ttcccgagg gagaaggcg gacaggtatc cggttaagcgg cagggtc当地 acaggagagc
3060

gcacgaggga gctccagg gggAACGCT ggtatctta tagtc当地 ggttccg
3120

acctctgact tgagcgtcga ttttgtgat gctcgtcagg gggccgagc ctatggaaaa
3180

acgccc当地 cgc当地 cttt ttacggc当地 tggc当地 ttg ctggc当地 gtc当地
3240

tcttc当地 cttc gttatccc当地 gattctgtgg ataaccgtat taccgc当地 gagttagctg
3300

ataccgctcg cc当地 cccgaa acgaccgagc gc当地 gagtc当地 agttagc当地
3360

agcgc当地 ctgat gc当地 ggtt当地 ctc当地 ttacgc当地 atctgtgc当地
3420

gtgc当地 ctc agtacaatct gctctgatgc cgcatagttt agccagttt cactccg
3480

tc当地 gctacgtg actgcaagga gatggc当地 ccc aacagtc当地 cggccacgg
3540

ataccacgc cggaaacaaggc gctcatgagc cccgaaatggc gagccggatc ttccccc当地
3600

gtgatgtc当地 gg cggatataaggc gccagcaacc gc当地 acctgtgg cggcc
3660

atgcgtccgg cgttagaggat cttgagatct cgatccg
3703

<210> 11
<211> 5576
<212> DNA
<213> pLSC52 plasmid full sequence

<400> 11
taatacact cactataggg agaccacaac ggttccctc tagaaataat tttgttaac
60

tttaagaagg agatatacat atggatgtga agctggtgga atctggagga ggcttagtgc
120

agcctggagg gtcctgaaa ctctcctgtg caacctctgg attcacttgc agtacttatt
180

acatgtattt ggttcgccag actccagaga agaggctgga gtgggtcgca tacatttagta
240

atgtatgatag ttccggcgct tattcagaca ctgtaaaggcccggttccacc atctccagag
300

acaatgccag gaacaccctc tacctgcaaa tgagccgtct gaagtctgag gacacagcca
360

tatatttcctg tgcaagagga ctggcctggg gagcctggtt tgcttactgg ggccaaggga
420

ctctggtcac tgtctctgca gccaaaacga caccatccatc tgtctatcca ctggccctg
480

gatctgtgc ccaaactaac tccatggtga ccctggatg cctggtaag ggctatttcc
540

ctgagccagt gacagtgacc tggaactctg gatccctgtc cagcgggtgtg cacacattcc
600

cagctgtcct gcagtctgac ctctacactc tgagcagctc agtgactgtc ccctccagca
660

cctggccctc cgagaccgtc acctgcaacg ttgcccaccc ggccagcagc accaagggtgg
720

acaagaaaaat tggccagg gattgtggtg agccaaatc ttgtgacaaa actcacacat
780

gccccaccgtg cccagcacct gaactcctgg ggggaccgtc agtcttcctc ttccccccaa
840

aacccttccatg atctcccgga cccctgaggt cacatgcgtg gtgggtggacg
900

tgagccacga agaccctgag gtcaagttca actggtaatgttggcgtg gaggtgcata
960

atgccaagac aaagcccgccg gaggagcagt acaacagcac gtaccgtgtg gtcagcgtcc
1020

tcaccgtcct gcaccaggac tggctgaatg gcaaggagta caagtgcacat gtctccaaca
1080

aagccctccc agcccccattc gagaaaacca tctccaaagc caaaggccag ccccgagaac
1140

cacagggtgt a caccctgccc ccatcccggt atgagctgac caagaaccag gtcagcctga
1200

cctgcctggc c aaaggcttc tatcccagcg acatgccgt ggagtggag agcaatggc
1260

agccggagaa caactacaag accacgcctc ccgtgctgga ctccgacggc tccttcttcc
1320

tctacagcaa gctcaccgtg gacaagagca ggtggcagca gggaaacgta ttctcatgt
1380

ccgtgatgca tgaggctctg cacaaccact acacgcagaa gagcctctcc ctgtctccgg
1440

gtaaaggcgg aggccggatcc ggtggtggcg gttctaaagc ttccggaggt cccgagggcg
1500

gcagcctggc cgcgctgacc gcgcaccagg cttgccacct gccgctggag actttcaccc
1560

gtcatcgcca gcccgcggc tggaaacaac tggagcagtg cgctatccg gtgcagcggc
1620

tggtcgcctt ctacctggcg ggcggctgt cgtgaaacca ggtcgaccag gtgatccgca
1680

acgcctggc cagccccggc agcggcggcg acctggcgaa agcgatccgc gagcagccgg
1740

agcaggcccg tctggccctg accctggcccg ccgcccggag cgagcgcttc gtccggcagg
1800

gcacccggcaa cgacgaggcc ggcgcggcca acggcccgcc ggacagcggc gacccctgc
1860

tggagcgc当地 ctatcccact ggccggagt tcctcgccga cggccggcgc gtcagctca
1920

gcacccggc当地 cacgcagaac tggacgggtgg agcggctgct ccaggcgcac cgccaaactgg
1980

aggagcgc当地 ctatgtgttc gtcggctacc acggcacctt cctcgaagcg ggc当地aaagca
2040

tctgtttcgg cgggggtgc当地 ggcgc当地ggcc aggacctcg cgc当地atctgg cgggtttct
2100

atatcgccgg cgatccggcg ctggcctacg gtc当地gc当地ccaa ggaccaggaa cccgacgc当地
2160

gcggccggat cc当地caacggt gccc当地gtgc gggctatgt cc当地cgctcg agcctgccc当地
2220

gcttctaccg caccaggctg accctggcccg cggccggaggc ggc当地ggc当地ag gtc当地acggc当地
2280

tgatcgccca tccgctgccc ctgc当地ctgg acgccatcac cggccccc当地ag gaggaaggcg
2340

ggcgc当地ctggc当地 gaccattctc ggctggccgc tggccgagcg caccgtggc当地 attccctcg
2400

cgatccccac cgacccgcgc aacgtcgccg gcgacctcg a cccgtccagc atccccgaca
2460
aggaacaggc gatcagcgcc ctgccggact acgccagcca gcccggcaaa ccgcgcgcg
2520
aggacctgaa gtaactgccc cgaccggccg gctccctcg caggagccgg cttctcg
2580
gcctggccat acatcagggtt ttccctgatgc cagcccaatc gaatatgaat tcggctgcta
2640
acaaagcccg aaaggaagct gagttggctg ctgccaccgc tgagcaataa ctagcataac
2700
cccttggcc tctaaacggg tcttgagggg tttttgctg aaaggaggaa ctatatccgg
2760
atcggagatc aattctggcg taatagcgaa gaggccgca ccgatcgccc ttcccaacag
2820
ttgcgtagcc tgaatggcg atggacgcg ccctgtagcg ggcattaaag cgccgggg
2880
gtggtggtta cgccgcagcgt gaccgctaca cttgccagcg ccctagcgcc cgcccttcc
2940
gctttcttcc cttcccttct cgccacgttc gccggcttcc cccgtcaagc tctaaatcg
3000
gggctccctt taggggttccg atttagtgct ttacggcacc tcgaccccaa aaaacttgat
3060
tagggtgatg gttcacgtag tggccatcg ccctgataga cggttttgc cccttgacg
3120
ttggagtcca ctttctttaa tagtgactc ttgttccaaa ctggaaacaac actcaaccct
3180
atctcggtct attctttga ttataaggg attttgccga ttccggccta ttggtaaaa
3240
aatgagctga tttaacaaaa atttaacgcg aattttaca aaatattaac gtttacaatt
3300
tcagggcgttca ctttccgggg aaatgtgcgc ggaaccccta ttgtttatt tttctaaata
3360
cattcaaata tgtatccgct catgagacaa taaccctgat aaatgcttca ataatattga
3420
aaaaggaaga gtatgagttat tcaacatttc cgtgtcgccc ttattccctt ttggcggca
3480
ttttgccttc ctgttttgc tcacccagaa acgctggtga aagtaaaaga tgctgaagat
3540
cagttgggtg cacgagtggg ttacatcgaa ctggatctca acagcggtaa gatccttgag
3600
agttttcgcc ccgaagaacg ttttccaatg atgagcactt ttaaagttct gctatgtggc
3660

gcggatttat cccgtattga cgccggcaa gagcaactcg gtcgcccac acactattct
3720

cagaatgact tggtagta ctcaccagtc acagaaaagc atcttacgga tggcatgaca
3780

gtaagagaat tatgcagtgc tgccataagc atgagtgata acactgcggc caacttactt
3840

ctgacaacga tcggaggacc gaaggagcta accgctttt ttcacaacat ggggatcat
3900

gtaactcgcc ttgatcggtt ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt
3960

gacaccacga tgcctgtac aatggcaaca acgttgcga aactattaac tggcgaacta
4020

cttactctag cttccggca acaattaata gactggatgg aggcggataa agttgcagga
4080

ccacttctgc gctcgccct tccggctggc tggttattt ctgataaatac tggagccggt
4140

gagcgtgggt ctcgcgtat cattgcagca ctggggccag atggtaagcc ctccgtatc
4200

gtagttatct acacgacggg cagtcaggca actatggatg aacgaaatag acagatcgct
4260

gagataggtg cctcaactgat taagcattgg taactgtcag accaagtttta ctcataata
4320

ctttagattt attaaaaact tcattttaa tttaaaagga tctaggtgaa gatcctttt
4380

gataatctca tgacaaaaat cccttaacgt gagtttcgt tccactgagc gtcagacccc
4440

gtagaaaaga tcaaaggatc ttcttgagat ctttttttc tgcgctaat ctgctgcttg
4500

caaacaaaaa aaccaccgct accagcggtg gtttggc cggatcaaga gctaccaact
4560

cttttccga aggttaactgg cttcagcaga ggcagatac caaatactgt cttctagtg
4620

tagccgtat taggccacca cttcaagaac tctgttagcac cgcctacata ctcgctctg
4680

ctaattctgt taccagtggc tgctgccagt ggcgataagt cgtgtttac cgggttggac
4740

tcaagacgt agttaccgga taaggcgcag cggcggctt gaaacgggggg ttcgtgcaca
4800

cagcccagct tggagcgaac gacctacacc gaactgagat acctacagcg tgagcattga
4860

gaaagcgcca cgcttccga agggagaaag gcggacaggt atccgtaag cggcagggtc
4920

ggaacaggag agcgacgag ggagcttcca ggggggaacg cctggtatct ttatagtcct
 4980
 gtcgggttgc cccacctctg acttgagcgt cgattttgt gatgctcgac agggggccg
 5040
 agcctatgga aaaacgccag caacgcggcc ttttacggt tcctggcctt ttgctggcct
 5100
 tttgctcaca ttttcttcc tgcgttatcc cctgattctg tggataaccg tattaccgac
 5160
 tttgagtgag ctgataccgc tcgccgcagc cgaacgaccg agcgcagcga gtcagtgagc
 5220
 gaggaagcgg aagagcgcct gatgcggtat ttttcctta cgcacatgtg cggtatttca
 5280
 caccgcata atggtgact ctcagtacaa tctgctctga tgccgcata gtaagccagt
 5340
 atacactccg ctatcgctac gtgactgcaa ggagatggcg cccaacagtc ccccgccac
 5400
 ggggcctgcc accataccca cgccgaaaca agcgctcatg agcccgaaat ggcgagcccg
 5460
 atcttccccca tcggtgatgt cggcgatata ggcgccagca accgcacctg tggcgccggt
 5520
 gatgcccccc acgatgcgtc cggcgtagag gatcttgaga tctcgatccg cgaaat
 5576

<210> 12
 <211> 4263
 <212> DNA
 <213> pKL4 plasmid full sequence

<400> 12
 taatacgact cactataggg agaccacaac ggttccctc tagaaataat tttgttaac
 60
 tttaagaagg agatatacat atgcattacc atcaccatca cgatgtgaag ctggtgaaat
 120
 ctggaggagg cttagtgcag cctggagggt ccctgaaact ctcctgtgca acctctggat
 180
 tcactttcag tgactattac atgtattggg ttcgcccagac tccagagaag aggctggagt
 240
 ggttcgcata cattagtaat gatgatagtt ccggccctta ttcagacact gtaaaggccc
 300
 ggttcaccat ctccagagac aatgccagga acaccctcta cctgcaaatg agccgtctga
 360
 agtctgagga cacagccata tattcctgtg caagaggact ggcctggggaa gcctggtttgc
 420
 cttactgggg ccaaggact ctggtcactg tctctgcagc caaaacgaca ccccatctg

tctatccact ggcccctgga tctgctgccc aaactaactc catggtgacc ctgggatgcc
540

tggtcaaggg ctatccct gagccagtga cagtgacctg gaactctgga tccctgtcca
600

gcggtgtgca caccttccca gctgtcctgc agtctgacct ctacactctg agcagctcag
660

tgactgtccc ctccagcacc tggcccagcg agaccgtcac ctgcaacggtt gcccacccgg
720

ccagcagcac caaggtggac aagaaaattg tgcccaggga ttgtgggtct aagccttgca
780

tagctacaca agcttccggt ggtggcggat ctggaggtgg cggaagcgga ggtcccgagg
840

tgacaggggg aatggcaagc aagtggatc agaagggtat ggacattgcc tatgaggagg
900

cggccttagg ttacaaagag ggtgggttcc ctattggcggt atgtcttatac aataacaaag
960

acggaagtgt tctcggtcgt ggtcacaaca tgagattca aaaggatcc gccacactac
1020

atggtgagat ctccactttg gaaaactgtg ggagattaga gggcaaagtg tacaaagata
1080

ccactttgttta tacgacgctg tctccatgctg acatgtgtac aggtgccatc atcatgtatg
1140

gtattccacg ctgtgttgc ggtgagaacg ttaattcaa aagtaagggc gagaatatt
1200

tacaaactag aggtcacgag gttgttggt tgacgatga gaggtgtaaa aagatcatga
1260

aacaatttat cgatgaaaga cctcaggatt ggttgaaga tattggtgag taggaattcg
1320

gctgctaaca aagccgaaa ggaagctgag ttggctgctg ccaccgctga gcaataacta
1380

gcataacccc ttgggcctct aaacgggtct tgaggggttt tttgctgaaa ggaggaacta
1440

tatccggatc ggagatcaat tctggcgtaa tagcgaagag gcccgcaccc atcgccttc
1500

ccaacagttg cgtacgctga atggcgaatg ggacgcgccc tggtagcggcg cattaagcgc
1560

ggcgggtgtg gtggttacgc gcagcgtgac cgctacactt gccagcgcgg tagcgcggc
1620

tcctttcgct ttcttccctt cctttctcgcc cacgttcgccc ggctttcccc gtcaagctct
1680

aaatcgaaaa ctccctttag gttccgatt tagtgctta cggcacctcg accccaaaaaa

1740

acttgattag ggtgatggtt cacgtagtgg gccatcgccc tgatagacgg ttttcgccc
1800

tttgacgttg gagtccacgt tcttaatag tggactcttg ttccaaactg gaacaacact
1860

caaccctatc tcggtctatt ctttgattt ataaggatt ttgcccattt cgccctattt
1920

gttaaaaaat gagctgattt aacaaaaatt taacgcattt tttaacaaaa tattaacgtt
1980

tacaatttca ggtggcactt ttcggggaaa tgtgcgcga acccctattt gtttatttt
2040

ctaaatacat tcaaataatgt atccgctcat gagacaataa ccctgataaa tgcttcaata
2100

atattgaaaa aggaagagta tgagtattca acatttccgt gtcgcctta ttccctttt
2160

tgcggcattt tgccttcctg ttttgctca cccagaaacg ctggtaaag taaaagatgc
2220

tgaagatcag ttgggtgcac gagtgggtta catgcatttgc gatctcaaca gcggtaagat
2280

ccttgagagt tttcgcccg aagaacgtt tccaatgttgc agcacttttta aagttctgt
2340

atgtggcgcg gtattatccc gtattgacgc cggcaagag caactcggtc gcccataca
2400

ctattctcag aatgacttgg ttgagtactc accagtcaca gaaaagcatc ttacggatgg
2460

catgacagta agagaattat gcagtgcgc cataaggatc agtgataaca ctggggccaa
2520

cttacttctg acaacgatcg gaggaccgaa ggagctaacc gcttttttc acaacatgg
2580

ggatcatgtt actcgccatttgc atcggtggaa accggagcttgc aatgaaggcc taccaaac
2640

cgagcgtgac accacgatgc ctgttagcaat ggcaacaacg ttgcgcacac tattaactgg
2700

cgaactactt actctagctt cccggcaaca attaatagac tggatggagg cggataaaagt
2760

tgcaggacca cttctgcgtc cggccatttcc ggctggctgg tttattgttgc ataaatctgg
2820

agccgggtgag cgtgggtctc gcggtatcat tgcagcacttgc gggccagatg gtaagccctc
2880

ccgtatcgta gttatctaca cgacggcag tcaggcaact atggatgaac gaaatagaca
2940

gatcgctgag ataggtgcct cactgattaa gcattgttgc ctgtcagacc aagtttactc

3000
atataactt tagattgatt taaaacttca ttttaattt aaaaggatct aggtgaagat
3060
cctttttagt aatctcatga caaaaatccc ttaacgttag tttcgttcc actgagcgta
3120
agaccccgta gaaaagatca aaggatctt c ttgagatcct tttttctgc gcgtaatctg
3180
ctgcttgcaa aaaaaaaaaac caccgctacc agcgggtggtt tgtttgcgg atcaagagct
3240
accaactctt tttccgaagg taactggctt cagcagagcg cagataccaa atactgtcct
3300
tcttagttag ccgtagttag gccaccactt caagaactct gtagcaccgc ctacatacct
3360
cgctctgcta atcctgttac cagtggctgc tgccagtggc gataagtctg gtcttaccgg
3420
gttggactca agacgatagt taccggataa ggccgcgg tcgggctgaa cgggggggttc
3480
gtgcacacag cccagcttgg agcgaacgac ctacaccgaa ctgagatacc tacagcgtga
3540
gcattgagaa agcgccacgc ttcccgaagg gagaaggcg gacaggtatc cgtaagcgg
3600
cagggtcgga acaggagagc gcacgaggga gcttccaggg gggAACGCTT ggtatctta
3660
tagtcctgtc gggttcgcc acctctgact tgacgtcga ttttgtat gtcgtcagg
3720
ggggccgagc ctatggaaaa acgccagcaa cgccgcctt ttacggttcc tggcctttg
3780
ctggcctttt gtcacatgt tcttcctgc gttatcccct gattctgtgg ataaccgtat
3840
taccgccttt gaggtagctg ataccgctcg ccgcagccga acgaccgagc gcagcgtgc
3900
agtggcgag gaagcgaaag agccctgat gcggtatccc ctccttacgc atctgtgcgg
3960
tatttcacac cgcatatatg gtgcactctc agtacaatct gctctgtatgc cgcatagtt
4020
agccagtata cactccgcta tcgctacgtg actgcaagga gatggcgccc aacagtcccc
4080
cgcccacggg gcctgccacc ataccacgc cgaaacaagc gctcatgagc ccgaagtggc
4140
gagcccgatc ttccccatcg gtgtatgtcg cgatataaggc gccagcaacc gcacctgtgg
4200
cgccgggtat gccccccacg atgcgtccgg cgtagaggat cttgagatct cgatccgcga